CLAIMS

We claim:

1. A PNA probe comprising a nucleobase sequence suitable for the detection, identification and/or quantitation of Pseudomonas (sensu stricto), said PNA probe being complementary to a target sequence of 23S rRNA or rDNA of all species of the genus Pseudomonas, or its complement.

2. The PNA probe of claim 1, wherein at least a portion of the probe is at least about 90% identical to the nucleobase sequence or complement thereof selected from the following sequence: CCT ACC ACC TTA AAC (Seq. Id. No. 1).

3. The PNA probe of claim 1-2, wherein the probe sequence is 8-17 subunits in length.

4. The PNA probe of claim 1-3 for the detection, identification and/or quantification of Pseudomonas (sensu stricto) comprising the following probe sequence: CCT ACC ACC TTA AAC (Seq. Id. No. 1), the complement and/or variations thereof.

5. The PNA probe of claim 1-4, wherein the probe is labeled with at least one detectable moiety.

6. The PNA probe of claim 5, wherein the detectable moiety or moieties are selected from the group consisting of: a conjugate, a branched detection system, a chromophore, a fluorophore, a spin label, a radioisotope, an enzyme, a hapten, an acridinium ester and a luminescent compound.

7. The PNA probe of claim 5-6, wherein the probe is self-reporting.

8. The PNA probe of claims 7, wherein the probe comprises a PNA Linear Beacon.

9. The PNA probe of claim 1-4, wherein the probe is unlabeled.

10. The PNA probe of claim 1-9, wherein the probe is bound to a support.

11. The PNA probe of claims 1-10, wherein the probe further comprises a spacer or a linker.

12. The PNA probe of claims 1-11, wherein in situ hybridization is used for analysis of Pseudomonas (sensu stricto) optionally present in the sample.

13. A method for the detection, identification and/or quantitation of Pseudomonas (sensu stricto) in a sample, said method comprising: a) contacting at least one of the PNA probes of claims 1-12 to the sample,
b) hybridizing the PNA probe to a target sequence of species of the genus Pseudomonas in the sample; and
c) detecting the hybridization as being indicative of presence, identity and/or amount of Pseudomonas (sensu stricto) in the sample.

14. A method according to claim 13, wherein the analysis takes place in situ.

15. A method according to claim 12-13, wherein the analysis takes place by fluorescence in situ hybridization.

16. A method according to claims 15, wherein the analysis does not involve the use of cross-linking reagents or enzymes prior to hybridization.

17. The method of claim 12-14, wherein the method is used to detect a nucleic acid comprising a target sequence wherein said nucleic acid has been synthesized or amplified in a reaction.

18. The method of claim 17, wherein preferred nucleic acid synthesis or nucleic acid amplification reactions are selected from the group consisting of: Polymerase Chain Reaction (PCR), Ligase Chain Reaction (LCR), Strand Displacement Amplification (SDA), Transcription-Mediated Amplification (TMA), Rolling Circle Amplification (RCA) and Q beta replicase.

19. The method of claim 12-18, wherein the method further comprises adding at least one blocking probe to reduce or eliminate any hybridization of the PNA probe to non-target sequence.

20. The method of claim 12-19, wherein the target sequence is immobilized to a surface.

21. The method of claim 12-20, wherein said PNA probe is immobilized to a surface.

22. The method of claim 21, wherein said PNA probe is one component of an array.

23. The method of claims 12-22, wherein the sample is a biological sample.

24. The method of claim 23, wherein the biological sample is blood, urine, secretion, sweat, sputum, stool, mucous, or cultures thereof.

25. A kit suitable for performing an assay for detection, identification and/or quantitation of Pseudomonas (sensu stricto) in a sample, wherein said kit comprises: a) a PNA probe according to claim 1 to 12 and b) other reagents

or compositions necessary to perform the assay.

26. The kit of claim 25, wherein Pseudomonas (sensu stricto) and at least one other microorganism optionally present in a sample are independently detected, identified and/or quantitated.

27. The kit of claim 25-26, wherein Pseudomonas (sensu stricto) optionally present in a sample is detected, identified and/or quantitated and its susceptibility to antimicrobial agents is determined.

28. The kit of claim 25-27, wherein the kit is used in an in-situ hybridization assay.

29. The kit of claim 22-27, wherein the kit is used for a real-time PCR assay.

30. The kit of claim 22-29, wherein the kit is used to examine clinical samples such as clinical specimens or cultures thereof.

31. The kit of claim 25-29, wherein the kit is used to examine food, beverages, water, pharmaceutical products, personal care products, dairy products or environmental samples or cultures thereof.